

CROSS REFERENCE TO RELATED APPLICATIONS

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This application is a continuation of Patent Application No. 09/263,654, filed March 5, 1999, entitled "Buried Heterostructure For Lasers And Light Emitting Diodes," having Shih-Yuan Wang and Yong Chen as inventors. This application is assigned to LumiLeds Lighting, U.S., LLC, the assignee of the present invention, and is hereby incorporated by reference in its entirety and for all purposes.

Please amend the paragraph beginning on page 2, line 17, to read as follows:

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A gallium nitride based semiconductor material, and method for its production, that has fewer defects than an underlying gallium nitride based semiconductor material is disclosed. This invention includes the steps of forming a first gallium nitride based semiconductor layer overlying a substrate of a dissimilar material, the first gallium nitride based semiconductor layer having defects due to a lattice mis-match between the substrate and the first gallium nitride based semiconductor layer, forming a trench in the first gallium nitride based semiconductor layer, the trench having a bottom surface and side walls, depositing a first material on a surface of the first gallium nitride based semiconductor layer to prevent a second gallium nitride based semiconductor layer from nucleating on the surface of the first gallium nitride based semiconductor layer, and growing the second gallium nitride based semiconductor layer, of a material different from the first gallium nitride based semiconductor layer, extending from at least one of the side walls, a bottom surface of the trench being of a material such that the second gallium nitride based semiconductor layer will not nucleate thereon, the second gallium nitride based semiconductor layer having fewer defects than the first gallium nitride based semiconductor layer.

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Please amend the paragraph beginning on page 4, line 13, to read as follows:

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The manner in which the present invention gains its advantages can be more easily understood with reference to Figures 3-6, which are cross-sectional views through a GaN-based laser 200 according to the present invention at various stages in the fabrication process. Refer first to Figure 3. Laser 200 is fabricated on a sapphire substrate 210 on which a buffer layer 212 of AlN and a base layer 213 of GaN have been epitaxially grown. A layer of AlGaIn is grown on top of layer 213 as shown at 214 and a trench 216 is etched in layer 214. The etching of trench 216 is the only precision masking step in the fabrication process. Trench 216 defines the location of the laser on the substrate.

IN THE CLAIMS

Please cancel claims 1-12 without prejudice or disclaimer of the subject matter recited therein. Please add claims 13-33.

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13. (New) A method for growing a gallium nitride based semiconductor material overlying a substrate of a dissimilar material, comprising:

forming a first gallium nitride based semiconductor layer overlying said substrate, said first gallium nitride based semiconductor layer having defects due to a lattice mis-match between said substrate and said first gallium nitride based semiconductor layer;

forming a trench in said first gallium nitride based semiconductor layer, said trench having a bottom surface and side walls;

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